

### **REMARKS**

Claims 23-28 are pending in the above-identified application. Claims 23-28 were rejected. With this Amendment, claims 23 and 27 were amended. Accordingly, claims 23-28 are at issue in the above-identified application.

### **35 U.S.C. § 102 Anticipation Rejection of Claims and 35 U.S.C. § 103 Obviousness**

#### **Rejection of Claims**

Claims 23-25 were rejected under 35 U.S.C. § 102(e) as being anticipated by *Isoyama et al.* (U.S. Patent No. 6,093,503). Claims 26-28 were rejected under 35 U.S.C. 103(a) as being unpatentable over *Isoyama et al.* in view of *Miyasaka* (U.S. Patent No. 5,869,208). Applicants respectfully traverse these rejections.

Claim 23 recites a method of producing a positive electrode active material for a non-aqueous electrolyte cell, comprising mixing a first ingredient with a lithium composite manganese oxide, molding the mixture under pressure, sintering the mixture at a temperature *not lower than 600°C and not higher than 850°C*, wherein the positive electrode active material comprises lithium composite manganese oxide having a spinel structure whose primary particle diameter is *not less than 0.05 μm and not greater than 10 μm*, forms an aggregate, and whose specific surface area measured by the BET method is not less than 0.2 m<sup>2</sup>/g and not greater than 2 m<sup>2</sup>/g, and wherein the lithium composite manganese active material is expressed by a general formula  $\text{Li}_x\text{Mn}_{2-y}\text{M}_y\text{O}_4$ , wherein  $.09 \leq x \leq 1.4$ ;  $0 < y < .3$ ; and M is one or more materials selected from the group consisting of Ti, V, Cr, Fe, Co, Ni, and Al.

*Isoyama et al.* teaches a non-aqueous electrolyte lithium secondary cell having a positive active material which comprises a metallic compound powder capable of occluding or releasing

lithium, comprising a single crystal or an aggregate of a plurality of single crystals and having a particle diameter in the range from 1 to 20  $\mu\text{m}$  with the single crystal having a grain diameter in the range of from 0.1 to 20  $\mu\text{m}$ . (See *Isoyama et al.*, column 2, lines 12-20). *Isoyama et al.* does not teach a positive electrode active material comprising lithium composite manganese oxide having a spinal structure whose primary particle diameter is *not less than 0.05  $\mu\text{m}$  and not greater than 10  $\mu\text{m}$* , since a range of 1 to 20  $\mu\text{m}$  does not teach or suggest a range that is *not less than 0.05  $\mu\text{m}$  and not greater than 10  $\mu\text{m}$* , since the range of 1 to 20  $\mu\text{m}$  clearly suggests a primary particle diameter greater than 10  $\mu\text{m}$ .

Additionally, *Isoyama et al.* teaches centering a mixture at a temperature in the range of from 300 to 1200°C. However, such a range does not teach or suggest centering a mixture at a temperature *not lower than 600°C and not higher than 850°C*, since the range of 300°C to 1200°C clearly suggests a centering temperature that is lower than 600°C and higher than 850°C. As a result, Applicants believe that since the primary particle diameters taught within *Isoyama et al.* and the temperature range at which the mixture is centered within *Isoyama et al.* differs from that range and that particle diameters taught within claim 23, and as a result, it would *not* be an inherent property of the cathode material to have a specific surface area measured by the BET method that is not less than 0.2  $\text{m}^2/\text{g}$  and not greater than 2  $\text{m}^2/\text{g}$ , as recited in claim 23.

Additionally, the Examiner states that the limitation in claim 23, with respect to the specific service area measured by BET, is considered to be an inherent property of the cathode material as set forth in the prior art. However, Applicants disagree with this assertion. The BET, which is specified in claim 23, is not an inherent property of the cathode material since the preparation of the present invention is different from that of the prior art, even though the starting material

may be similar. As recited in claim 23, the claim recites molding the mixture under *pressure*. As explained in the specification of the present invention, the BET varies depending on the *pressure* added to the mixture before molding. The addition of *pressure* to a mixture before sintering is not taught in the prior art. *Isoyama et al.* teaches subjecting a mixture to press molding on a collector core, but not before sintering the mixture. (See *Isoyama et al.*, column 12, lines 5-10). What's more the positive active material in *Isoyama et al.* requires the mixture of lithium composite manganese oxide and a binder and a conductive agent. However, the molding which is required in the citation in *Isoyama et al.* is the molding of a *collector core*, which is different from the mixture of lithium composite manganese oxide the binder and the conductive agent described above. The molding of the *collector core* is entirely different than the molding of a lithium composite manganese oxide mixture as recited in claim 23.

Finally, *Isoyama et al.* does not teach a positive electrode active material comprising lithium composite manganese oxide, wherein the lithium composite manganese active material is expressed by a general formula  $\text{Li}_x\text{Mn}_{2-y}\text{M}_y\text{O}_4$ , wherein  $.09 \leq x \leq 1.4$ ;  $0 < y < .3$ ; and M is one or more materials selected from the group consisting of Ti, V, Cr, Fe, Co, Ni, and Al. Specifically, *Isoyama et al.* fails to teach a lithium composite manganese active material expressed by the above-stated formula wherein M is one or more materials selected from the group consisting of Ti, V, Cr, Fe, Co, Ni, and Al. Accordingly, Applicants submit that the claimed invention is not anticipated by nor obvious over the applied references either alone or in combination. Withdrawal of these grounds of rejection is respectfully requested.

In view of the foregoing, Applicant submits that the application is in condition for allowance. Notice to that effect is requested.

Respectfully submitted,

Dated: July 11, 2005

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